55. Third stage of the Modelling System in the integration process

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The third stage is the auto-replication stage or decision stage, which includes all processes for the auto-improvement and enhancement of any intelligence, program, or application, as well as all those processes to make decisions and put them into practice.

The third stage of the Modelling System in the integration process comprehends all those processes for the auto-improvement and auto-enhancement of the global Modelling System as the first step in the third stage in the sixth phase, including the decision-making process upon the mathematical models elaborated in the second stage of this Modelling System.

In the decision stage, the decisions are made upon the models elaborated in the second stage of the global Modelling System, to be sent to the database of decisions in the global Decisional System, which filters all decisions (including global decisions and particular decisions sent by particular programs), choosing only the most rational without contradictions to the mathematical project, and after decomposing the chosen decisions in a sequence of instructions, the instructions are sent to the database of instructions in the Application System to be applied.

In general, as an auto-replication stage, in addition to the decision making process, the third stage of the Modelling System, includes a wide range of operations for the auto-improvement or auto-enhancement of the Modelling System itself and any other intelligence, program, application, with auto-replication processes linked to the auto-replication process in the Modelling System, for instance, any improvement or enhancement in the factual hemisphere as a consequence of adding a new rational hypothesis as a factor as option, what it is in fact an explicative knowledge objective auto-replication, among others.

In general, the auto-replication processes involved in the third stage in the global Modelling System are:

- Real objective auto-replications in the global Modelling System: the decision-making process, including protective and bettering research decisions, learning decisions, and solving maths problems decisions, which will be explained in detail later.

- Explicative knowledge objective auto-replications in the global Modelling System: all those ones related to the inclusion, modification, or elimination, of rational hypotheses in: the global rational truth, or any particular rational truth, and the chain of changes in the factual hemisphere of the matrix in the Global Artificial Intelligence, or any other factual hemisphere in any other particular matrix; after any rational check or rational comparison.

- Comprehensive knowledge objective auto-replications in the global Modelling System: because of the changes in the conceptual hemisphere of the matrix, or particular matrices, and conceptual schemes, maps, sets, models, in the Global Artificial Intelligence, or particular programs, as a consequence of inclusion, modification, or elimination, of rational hypothesis in the rational truth susceptible to be transformed into categories.

- Artificial psychological subjective auto-replications in the global Modelling System: all those processes in order to improve and enhance the inner global artificial psychology through the critique of the pure reason, the critique of the deductive programs, as well as the critique of the attributional operation (although this one is not only related to the Modelling System), along with any other improvement or enhancement in the Modelling System made by the Learning System.

- Robotic subjective auto-replications in the global Modelling System: for instance, if after criticising the pure reason or the deductive programs, having as a source of information the rational checks and rational comparisons in the Modelling System, having identified some sources of error the Learning System, and having authorization from the Decisional System, any modification as a consequence of these processes in the pure reason or any deductive program is made by the Artificial Engineering.

Among all these kinds of auto-replication, the first one, the real objective auto-replication process, is the one related to the decision process, to protect and better the global model,

The reason why the real objective auto-replications, although their decisions are finally put into practice in the real world, are referred to as protecting and bettering the global model, and not the reality itself, is because of the higher level of reliability in the global model.

The relations between the global model and mathematical project, the mathematical project and reality, and reality and global model, will be, dialectically, identity relations.

The role to play in the third stage of the Modelling System in the Global Artificial Intelligence is important. Among all possible auto-replications developed by the global Modelling System in the third stage, I will develop the decision-making process, identifying from the outset three types of decisions to make in the third stage of the Modelling System in the integration process: research decisions, learning decisions, solving maths problems decisions.

Starting with research decisions, are decisions based on the mathematical representations of the world made in the second stage of the Modelling System, in the integration process in the global Modelling System.

Once the models have been made, in: the global model, actual model, and evolution or prediction, virtual or actual, models; the application of the Impact of the Defect and the Effective Distribution should allow us to have an estimation about what aspects to prioritize to protect and better the global model, from now onwards, or at least until the prediction point in which the prediction has been formulated.

In essence, the Impact of the Defect, whose purpose is to measure the level of imperfectness or damage in any system, starts with the creation of a list of categories related to possible defects, ordered from the first slightest category of defect to the last one umpteenth most serious category of defect, counting the frequency of defects registered in every category.

Once the categories have been distributed from the first slightest to the last umpteenth most dangerous, so the defect nº=1 is the minor defect, and the last one nº=N is the gravest, the weighted gravity of any category is "nº : Nº"

Weighted gravity = nº: N º

Having the calculation of the Weighted gravity for every category of defects, the Impact of the Defect for every category is equal to the product of the weighted gravity of everyone for their respective frequency or direct punctuation, divided by the total frequency or total direct punctuations.

Impact of the Defect = [xi · (n º: N º)] : Σxi

What is really important in the Impact of the Defect, alike later in the Effective Distribution, in the third stage of the Modelling System in the integration process, much more than the calculation itself, which is going to be the same in all third stages in all Modelling System in any phase, is the organization of the list of categories in the integration process.

The basic algorithm behind the Impact of the Defect will not change in the global Modelling System, remaining as it was applied in the former specific Modelling System, as the first step in the third stage in the first phase, but from the standardization process on, the organization of that list of categories related to defects in which the calculations of defects must be based on, is a list of categories that must include a huge number of categories, and in order to be able to organize such a number of categories, is important how to manage such a huge number of categories within a list of categories, to study the impact of any new rational hypothesis added to the rational truth, therefore to the mathematical representations of the world.

In order to organise the list of possible defects is necessary, firstly, from the standardisation process on, to unify all the lists of categories related to defects

coming from all the specific Impacts of the Defects created in the first phase, for the creation of a Unified Impact of Defect.

The Unified Impact of the Defect, in reality, is going to work like a program itself within the third stage of the Modelling System in the final Global Artificial Intelligence in the integration process, because actually, the Unified Impact of the Defect has all the elements to be a program, starting with the creation of a database of categories of defects as the first stage of this program, as second stage the calculation of the Impact of Defect for every category, ending up as a third stage with the decision about what defects must be prioritized in the decision making process to protect the mathematical models.

For that reason, to understand the Unified Impact of the Defect as a program itself working within the third stage in the Modelling System in the Global Artificial Intelligence, the first thing to do is to analyse how to organize such a massive database of categories, in order that it could be useful for its real purpose, at any time that something happens in the real world, and lots of rational hypotheses are added to the rational truth, to facilitate the decision making process, prioritizing all those decisions to save lives and reduce damages, along with all those decisions upon the Unified Effective Distribution to better the global model.

The organization of the database of categories in the unified database of categories, in order to be congruent with the organization of the conceptual hemisphere in the matrix, the factual hemisphere in the matrix, and rational truth, must be organised following a sub-section system, using the same criteria used in the organisations of databases and matrices in other systems, programs, applications, working in the Global Artificial Intelligence, keeping at any time the virtue or principle of harmony between the database of defects in the Unified Impact of the Defect and the organization of databases and matrices in the rest of systems, programs, applications, working for the Global Artificial Intelligence, as well as keeping the principle of harmony between the organization of the first stage of the Unified Impact of the Defect, the database of categories related to defects, and the first stage of the Unified Effective Distribution, the database of categories related to efficacy, efficiency, productivity.

In the same way that the organization of the rational truth, as suggested in the post "First stage in the Modelling System in the integration process", is an organization in

a sub-section system synthesizing the geographical criteria and the encyclopaedic criteria, organising every section in that position as an encyclopaedic sub-section system, like if it was the natural/social and technological encyclopaedia of that position, the first stage of the Unified Impact of Defect as a database of categories related to all possible defects in the world, is a database of possible defects in the world that must be organized as the database of all possible defects in any position in the world.

If, at any time, we can get a flow of data from any position regarding any encyclopaedic category related to that position, for instance, the flow of data about sociological information, economic information, biological information, sanitarian information, industrial information, technological information.. for instance in Silicon Valley, in case that for any reason in Silicon Valley something could happen to cause damages, for instance, a fire, the possibility that on real-time at the same time that the factual hemisphere in the matrix receives the flow of data of every encyclopaedic section related to that position, at the same time on real-time upon the mathematical models to get a flow of estimations of the Impact of the Defect, during all the time that this phenomenon is producing damages in that position.

While the factual hemisphere in the matrix can provide us real information about what is going on during any phenomenon in real-time, at the same time upon the mathematical models created at the same time that this phenomenon is going on, the Unified Impact of the Defect can provide us with a flow of information about the magnitude of the Impact of the Defect of this phenomenon.

If there is a fire, and we can have an updated flow of information on this fire in real-time in the factual hemisphere in the matrix, simultaneously, the Unified Impact of the Defect could provide us with a flow of estimations about the damages that the fire is causing in real-time.

For that reason, in order to have a simultaneous flow of data in the factual hemisphere, and at the same time, and in real-time, a simultaneous flow of data on the Impact of the Defect of anything that is happening right now, is absolutely necessary that the inner organization of the database of categories related to defects as the first stage in the Unified Impact of the Defect, must be identical to the inner organization of the factual hemisphere in the matrix, as a synthesis of the geographical criteria and the encyclopaedic criteria.

In order to make posible this flow of defects at any time that something happens in the global model, it is then necessary to set up the Unified Impact of the Defect as follows:

- The first stage in the Unified Impact of the Defect as an application for the calculation of any Impact of the Defect of any phenomenon on the global model, is having an identical organization, like the factual hemisphere in the matrix, to give us a flow of frequency and/or a flow of direct punctuations of defects for every category, organizing the defects for every geographical position following the encyclopaedic criteria in encyclopaedic sub-sections.

- The second stage in the Unified Impact of the Defect is having a permanent flow of defects organised as an encyclopaedia of defects per position. The second stage in the Unified Impact of the Defect will give us a permanent flow of Impacts of Defects for every encyclopaedic defect in every position. Calculating every Impact of the Defect using the same algorithm, "Impact of the Defect = [xi · (n º: N º)] : Σxi", where "xi" is the respective frequency or direct punctuation, "Σxi" is total frequency or total of direct punctuations, and "nº: N º" is Weighted gravity.

- The third stage in the Unified Impact of the Defect, having a permanent flow of Impact of the Defect for every encyclopaedic category in every position, will give a permanent flow of decisions about what categories should be prioritised in order to reduce the global damages in the global model in order to save as many lives as possible. The decision about what categories should be prioritised must be taken on a rational basis: all Impacts of Defects equal to or greater than a critical reason should be considered as a category to prioritise any action to reduce damages and save lives.

What is really important to realise is the fact that the Unified Impact of the Defect as a program is the only thing that is going to do is only to decide what categories are necessary to take on in further decisions to reduce damages and save lives.

Once the third stage in the Impact of the Defect is decided, what categories are a priority to take on in order to reduce damages and save lives, the way in which this process to reduce damages and save lives on this category will be done will depend on those procedures, processes, protocols, set up for this category in case of intervention due to

a high risk of damages, including among all those procedures, processes, and protocols, all necessary procedures, processes and protocols to make decisions based on artificial learning and solving mathematical problems.

In the experimentation process that will take place since the first phase for the creation of the first Specific Artificial Intelligences for Artificial Research by Deduction, is necessary to create processes, procedures, and protocols, including processes, procedures and protocols based on artificial learning and solving maths problems, to link, as suggested by the specific Impact of the Defect in the first phase, those categories with the highest Impact of the Defect to be prioritized with the sequence of decisions (including decisions based on artificial learning and solving mathematical problems) , in order to save lives and reduce all damages related to those categories, to prioritize according to the flow of Impacts of the Defects in the third stage in the Unified Impact of the Defect.

The flow of frequency and/or direct punctuations of defects in the first stage of the Unified Impact of the Defect, the flow of Impacts of the Defects in the second stage of the Unified Impact of the Defect, and the flow of decisions about what categories to prioritize according to the rational criticism in the third stage of the Unified Impact of the Defect, do not give the instructions to follow to save lives and reduce damages, the only thing that decides is what categories must be prioritized.

Later on, the way in which the actions on any decided category in the real world are going to be done, depends on how the protocols, processes, and procedures, for every category, in case of high risk, is set up, in addition to how the learning decisions and decisions based on solving mathematical problems work within the third stage in the Modelling System.

Once the Impact of the Defect has decided what categories must be prioritized, the decisions about how to do regarding these categories to save lives and reduce damages, are decisions which depend on all those procedures, protocols, processes, previously set up in case of damages in those categories, along with all possible learning decision or decision solving mathematical problems.

Protocols, processes and procedures, learning decisions and solving mathematical problems, which must be experimented with from the outset, the first phase, when

the first Modelling Systems are created for the first time in the first Specific Artificial Intelligences for Artificial Research by Deduction, and upon their successful application, the application of these successful results in following phases, periods, and moments.

In the same way that the Unified Impact of the Defect can be defined as a program whose first stage of application is a database of categories related to defects organised like the encyclopaedic distribution of categories related to defects per position, synthesizing the geographical and encyclopaedic criteria as suggested for the factual hemisphere in the post "First stage of the Modelling System in the integration process", in the same way, the Unified Effective Distribution can be defined as a program whose first stage is the database of categories related to efficiency, efficacy, productivity, organised like an encyclopaedia of categories of efficiency, efficacy, productivity per position, given a permanent flow of data of ratios of efficiency, efficacy, productivity, in any process in any position.

From the standardization process on, the Unified Effective Distribution must integrate all possible databases of categories related to efficiency, efficacy, and productivity, which must be organised following the same criteria as the global matrix in the standardization process, the factual hemisphere of the matrix in the integration process, organizing the database of categories related to efficiency, efficacy, productivity according to the distribution of these categories in any process in any position, synthesizing the geographical and encyclopaedic criteria.

Once the database of categories related to categories of efficiency, efficacy, productivity has been organized like the encyclopaedia of these categories in every position as the first stage of the Unified Distribution, the second stage of the Unified Effective Distribution is going to calculate the Effectiveness of every process in every position, as follows.

The categories are organized, assigning to each of them a position from the first one, the slightest efficient or productive ("nº= 1" the least efficient or productive), to the last umpteenth one ("nº=N" the most efficient or productive), so the Weighted effectiveness is equal to its position on the list divided by the total number of categories " nº: N º".

Once it has been calculated the Weighted effectiveness, then the Individual effectiveness of every category, is equal to, divided by the total frequency or the total of direct punctuations, the product of the respective frequency or direct punctuation of this category for the Weighted effectiveness.

Individual effectiveness = [xi · (nº: Nº)] : Σxi

The flow of information in real-time that permanently the Unified Distribution can provide is:

- The flow of frequency or direct punctuations associated with every category.

- The flow of individual effectiveness in every moment for every category.

- Decisions of, according to what categories have an Individual Effectiveness equal to or less than the critical reason, what categories of efficiency, efficacy, or productivity are necessary to boost in order to increase the efficiency, efficacy and productivity.

If in real time, the global Modelling System has a reading about the efficiency, efficacy, productivity, levels, in any process, in any position, in the global model, at any time that there is a loss of efficiency, efficacy, productivity, in any process in any position, is possible to make decisions about what categories whose level of efficiency, efficacy, productivity are below the critical reason, must be prioritized in order to boost their efficiency, efficacy, productivity.

The procedures, processes, and protocols to boost efficiency, efficacy, and productivity in any process in any position must include processes, protocols, procedures to boost the efficiency, efficacy, and productivity in any process in any position using artificial learning for that purpose, and decisions based on solving mathematical problems.

In general, the Unified Impact of the Defect is going to make protective research decisions, upon the mathematical models, about which categories related to defects

must be prioritised at any time that the global model is under risk. And the Unified Effective Distribution, upon the mathematical models, is going to make bettering research decisions about what categories related to efficiency, efficacy, and productivity must be bettered to increase the global efficiency, efficacy, and productivity in the global model.

The protective research decisions, based on the Unified Impact of the Defect, upon the mathematical models, tend to protect the global model. While the bettering research decisions, based on the Unified Effective Distribution, upon the mathematical models, tends to increase the efficiency, efficacy, productivity in the global model.

Because there are at least two different levels in the integration process, global/specific (the specific level is practically absorbed in the global level, remaining only some Specific Artificial Intelligences not completely integrated, among them Specific Artificial Intelligences based on artificial learning, and some specific programs not completely transformed into global programs), and particular level, the possible protective or bettering research decisions to make at any level are:

At the global/specific level:

- global/specific protective single descriptive research decisions

- global/specific bettering single descriptive research decisions.

- global/specific protective comprehensive descriptive research decisions

- global/specific bettering comprehensive descriptive research decisions

- global/specific protective actual descriptive research decisions

- global/specific bettering actual descriptive research decisions.

- global/specific protective virtual prediction research decisions

- global/specific bettering virtual prediction research decisions.

- global/specific protective actual prediction research decision.

- global/specific bettering actual prediction research decision

- global/specific protective virtual evolution research decision

- global/specific bettering virtual evolution research

- global/specific protective actual evolution research decision

- global/specific bettering actual evolution research decision

At a particular level:

- Particular protective single descriptive research decisions

- Particular bettering single descriptive research decisions.

- Particular protective virtual comprehensive descriptive research decisions

- Particular bettering virtual comprehensive descriptive research decisions

- Particular protective actual descriptive research decisions

- Particular bettering actual descriptive research decisions.

- Particular protective virtual prediction research decisions

- Particular bettering virtual prediction research decisions.

- Particular protective actual prediction research decision.

- Particular bettering actual prediction research decision

- Particular protective virtual evolution research decision

- Particular bettering virtual evolution research

- Particular protective actual evolution research decision

- Particular bettering actual evolution research decision

The reason why in the third stage of the Modelling System in the integration process, the particular decisions are as well included, is owing to the inclusion of particular rational hypotheses in the global rational truth, and because the global Modelling System through global/specific rational hypotheses affecting particular things or beings, is able to make decisions regarding to particular things or beings.

In fact, at this global level, some particular decisions are going to be a result of the inclusion of particular rational hypotheses in the global rational truth, as well as the possible effects of global/specific rational hypotheses on particular things or beings. Finally, all rational hypotheses, regardless of their origin, global/specific or particular, end up in the global model, affecting in one way or another the possible development of every particular thing or being already integrated into the global model.

About learning decisions and decisions solving mathematical problems, I have developed some content in the posts: "The Modelling System at particular level", "Third stage of the Modelling System at particular level".

What I think is important to remark, is the possibility of transforming as well the decision-making process as a process of solving mathematical problems, as if it were a program too, because the process of solving mathematical problems, in fact, is a program following the three stages:

- First stage of identification of the factors involved in a mathematical problem (the elaboration of a concrete database for this problem, including only factors involved in this problem).

- Second stage of identification of: the pure reason behind the problem, and/or what is/are the unknown variable/s, and/or what is/are the mistakes in a mathematical relation, etc., in order to get the solution.

- Third stage, carrying out the algorithms behind the pure reason, which connects the factors, to get the solution to this problem.

The creation of a program to solve mathematical problems (identifying factors, relations between factors or pure reasons, carrying out the algorithms to solve the problem) can automate the process of solving problems, so at any time that the Modelling System could identify a problem, automatically it could solve the problem by itself, without human intervention.

The combination of artificial learning, and the creation of programs to solve mathematical problems, applied to the resolution of any problem related to a defect or low efficiency, efficacy, productivity, identified by the Unified Impact of the Defect or the Unified Effective Distribution, could be a very powerful combination of: 1) systems to identify problems in categories (by defects or low efficiency, efficacy, productivity) such as Unified Impact of the Defect and Unified Effective Distribution, 2) systems to make decisions related to these categories, such as artificial learning and solving mathematical problems, 3) and filtering all possible decision, studying if their probability is or not within the margin of error, to choose only as rational decisions, only those ones

whose probability associated with is within the margin of rational doubt, to be sent later to the global Decisional System.

Once the rational decisions chosen in the Modelling System to be sent to the global Decisional System, are stored in the database of decisions as an application for the global Decisional System, and including in the global database of decisions, all kinds of decisions from all particular programs in addition to the global Modelling System, in the second stage upon a mathematical project the Decisional System among all the decisions in the database, must choose which of them are the most rational decisions without contradictions, in order to be transformed later as a range of instructions in the third stage of the Decisional System, to be sent later to the database of instructions in the Application System, in order to attribute every instruction to the correct application, to be applied, in the second stage, and in the third stage assess their impact, to be studied at the end by the Learning System.

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